

STATE OF MISSOURI  
DEPARTMENT OF NATURAL RESOURCES

Matt Blunt, Governor • Doyle Childers, Director

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OCT 18 2006

Darren L. Doyle  
BP Pipelines (North America) Inc.  
700 E. Main Street  
P. O. Box 188  
Freeman, MO 64746

RE: New Source Review - Temporary Permit  
Project Number: 2006-09-008, Installation ID Number: 037-0031  
Temporary Permit Number: **102006-010**  
Expiration Date: September 17, 2007.

Dear Mr. Doyle:

The Missouri Department of Natural Resources' Air Pollution Control Program has completed a review of your request, dated August 25, 2006 for a construction permit determination for crude oil storage cleaning. The Air Pollution Control Program has determined that a temporary permit is required and is hereby granting one according to 10 CSR 10-6.060(3).

Potential emissions of VOC from this tank cleaning operation are expected to be below 100 tons per year. Potential emissions from the 8MMBtu/hr propane heater are all below insignificant levels in 10 CSR 10-6.061, *Construction Permit Exemptions* (3)(A)3.A.

The following cleaning steps, for Tank 6931, were identified from your letter:

1. Crude oil pumpout.
2. Removal of accumulated sludge using cutter stock.
3. Tank degassing.
4. Sludge removal.
5. Refill tank.

The volatile organic compound (VOC) emissions associated with step 1 are considered to be equivalent to normal activity at Freeman Station. However, VOC emissions from steps 2-5 are unique to the tank cleaning operation.

Table 1 below summarizes the VOC emissions as a result of cleaning Tank 6931. These emissions are estimates over a 3 week period.

**Table 1. Summary of VOC Emissions from Tank 6931 cleaning (3 week period).**

| <i>Loss Type</i>    | <i>Quantity</i>  | <i>Unit</i> |
|---------------------|------------------|-------------|
| Standing Idle Loss  | 4,063.37         | Lb          |
| Tank Degassing Loss | 965.60           | Lb          |
| Sludge Removal Loss | 63,334.51        | Lb          |
| Tank Filling Loss   | 97.68            | Lb          |
|                     |                  |             |
| <b>TOTAL</b>        | <b>68,461.16</b> | <b>Lb</b>   |
|                     | <b>34.23</b>     | <b>Tons</b> |

VOC emissions from removal of accumulated sludge using cutter stock were determined as standing idle losses. When the floating roof lands on its supports, it creates a vapor space underneath the roof. Liquid remaining in the bottom of the tank provides a continuous source of vapors to replace those expelled by wind action. These standing idle losses occur daily as long as the tank roof remains landed. It was assumed that the tank would be landed for 21 days (3 weeks).

VOC emissions from tank degassing were approximated as the vapor displaced from the space between the floating roof and liquid heel. A saturation factor of 0.4938 was assumed for this approximation. The saturation factor was calculated using TANKS where Tank 6931 was modeled as a fixed roof tank with the deck leg height (7ft) as the tank height.

Additional VOC emissions will occur when the tank is filled after the cleaning operation. The incoming crude oil will generate vapors that are displaced during the filling process.

Reference to EPA document AP 42, Fifth Edition Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Section 7.1, Organic Liquid Storage Tanks (Draft 6/30/06) was used to estimate emissions from step 2, and 5 of the cleaning process.

For VOC emissions during sludge removal reference was made to the Texas Commission on Environmental Quality (TCEQ) document, Technical Supplement 6: *Aboveground Liquid Storage Tanks*, January 2006. It is assumed that aqueous sludges are about 80% to 90% water by weight. A conservative approach for determining emissions from sludge cleaning is to assume the sludge is 80% water; the remainder is assumed to be VOC and is emitted to the atmosphere.

The sludge was assumed to be six (6) inches deep, which is the liquid heel height.

You are still obligated to meet all applicable federal, state, or local agency regulations. Please pay specific attention to 10 CSR 10-3.030, *Open Burning Restrictions*, 10 CSR 10-3.090, *Restriction of Emission of Odors*, 10 CSR 10-6.170, *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, and 10 CSR 10-6.220, *Restriction of Emissions of Visible Air Contaminants*.

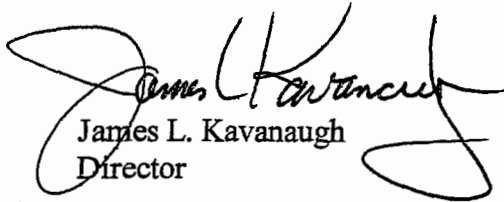
Mr. Darren Doyle  
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A copy of this letter should be kept on site for the duration of the tank cleaning operation and be made available to Department of Natural Resources' personnel upon request.

Should you have further questions or need additional information regarding this temporary permit, please contact Maurice Chemweno with the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102, or you may telephone (573) 751-4817. Thank you for your time and cooperation.

Sincerely,

AIR POLLUTION CONTROL PROGRAM



James L. Kavanaugh  
Director

JLK:mcl

c: Mr. Steve Feeler, Compliance/Enforcement Section  
Kansas City Regional Office  
PAMS File: 2006-09-008